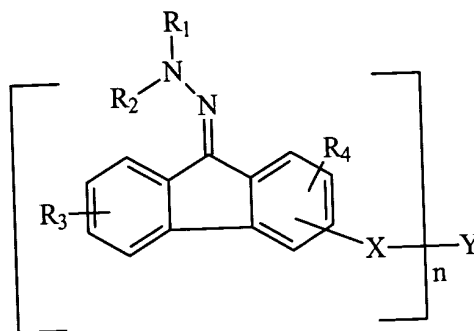


# CLAIMS

What is claimed is:

1. An organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising:  
5 (a) a charge transport material having the formula



where n is an integer between 2 and 6, inclusive;

- 10  $R_1$  and  $R_2$  are, independently, an alkyl group, an alkaryl group, or an aryl group with the proviso that neither  $R_1$  nor  $R_2$  is a naphthyl group, a stilbenyl group, alkylsulfonylphenyl group or a (9H-fluoren-9-ylidene)benzyl group;

- 15  $R_3$  and  $R_4$  are, independently, H, halogen, carboxyl, hydroxyl, thiol, cyano, nitro, aldehyde group, ketone group, an ether group, an ester group, a carbonyl group, an alkyl group, an alkaryl group, or an aryl group;

- 20 X is a linking group having the formula  $-(CH_2)_m-$ , branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups can be optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, a  $NR_5$  group, a  $CHR_6$  group, or a  $CR_7R_8$  group where  $R_5$ ,  $R_6$ ,  $R_7$ , and  $R_8$  are, independently, H, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

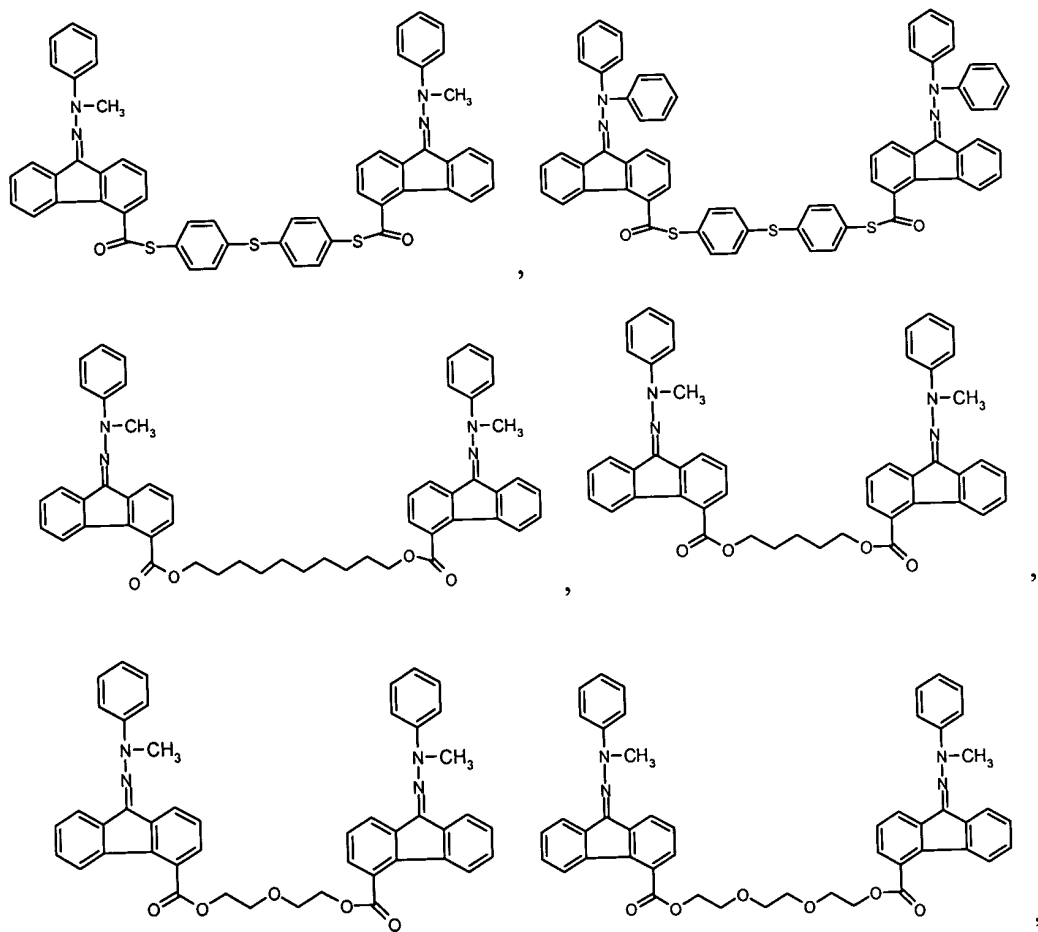
- 25 Y comprises a bond, C, N, O, S, a branched or linear  $-(CH_2)_p-$  group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or a  $NR_9$  group where  $R_9$  is hydrogen atom, an alkyl group, or aryl group, wherein Y has a structure selected to form n bonds with the corresponding X groups; and

- (b) a charge generating compound.

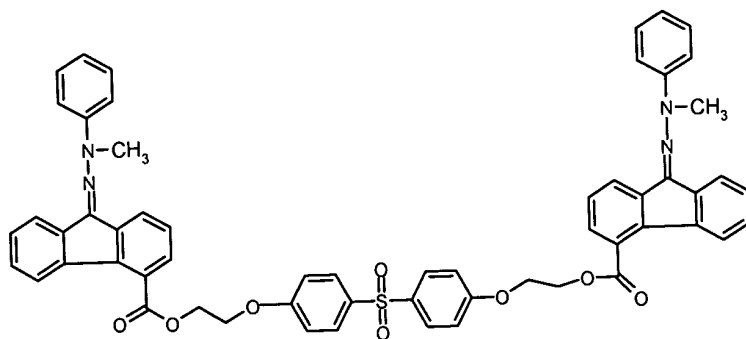
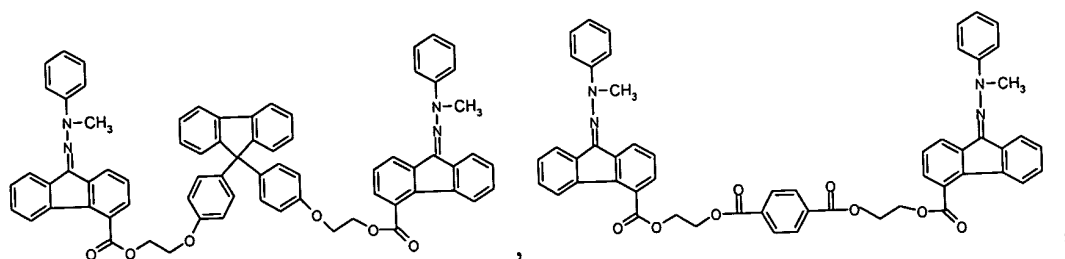
2. An organophotoreceptor according to claim 1 wherein Y is an aromatic group and X is -S-C(=O)-.

5 3. An organophotoreceptor according to claim 1 wherein Y is a bond, O, S, or CH<sub>2</sub> and X is -(CH<sub>2</sub>)<sub>m</sub>- group where m is an integer between 0 and 20 and where at least one of the CH<sub>2</sub> groups is replaced by O, S, C=O, O=S=O, an ester group, a heterocyclic group, or an aromatic group.

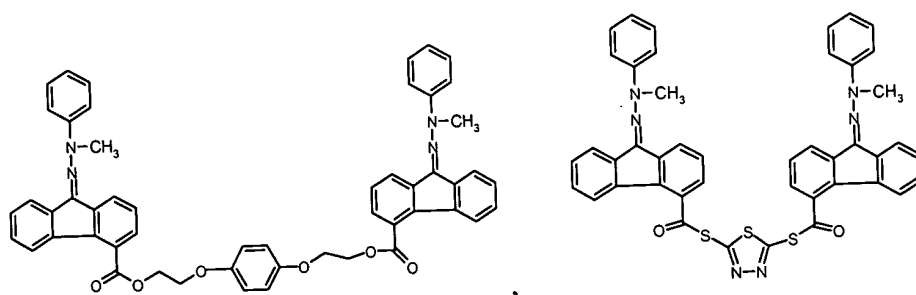
10 4. An organophotoreceptor according to claim 1 wherein the charge transport material has a formula selected from the group consisting of the following:



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5. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a second charge transport material.

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6. An organophotoreceptor according to claim 5 wherein the second charge transport material comprises a charge transport compound.

7. An organophotoreceptor according to claim 1 wherein the photoconductive element further comprises a binder.

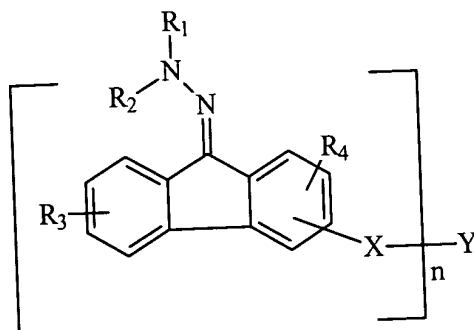
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8. An electrophotographic imaging apparatus comprising:

(a) a light imaging component; and

(b) an organophotoreceptor oriented to receive light from the light imaging component, the organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising

- 5 (i) a charge transport material having the formula



where n is an integer between 2 and 6, inclusive;

10  $R_1$  and  $R_2$  are, independently, an alkyl group, an alkaryl group, or an aryl group with the proviso that neither  $R_1$  nor  $R_2$  is a naphthyl group, a stilbenyl group, alkylsulfonylphenyl group or a (9H-fluorene-9-ylidene)benzyl group;

$R_3$  and  $R_4$  are, independently, H, halogen, carboxyl, hydroxyl, thiol, cyano, nitro, aldehyde group, ketone group, an ether group, an ester group, a carbonyl group, an alkyl group, an alkaryl group, or an aryl group;

15 X is a linking group having the formula  $-(CH_2)_m-$ , branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups can be optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, a  $NR_5$  group, a  $CHR_6$  group, or a  $CR_7R_8$  group where  $R_5$ ,  $R_6$ ,  $R_7$ , and  $R_8$  are, independently, H, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

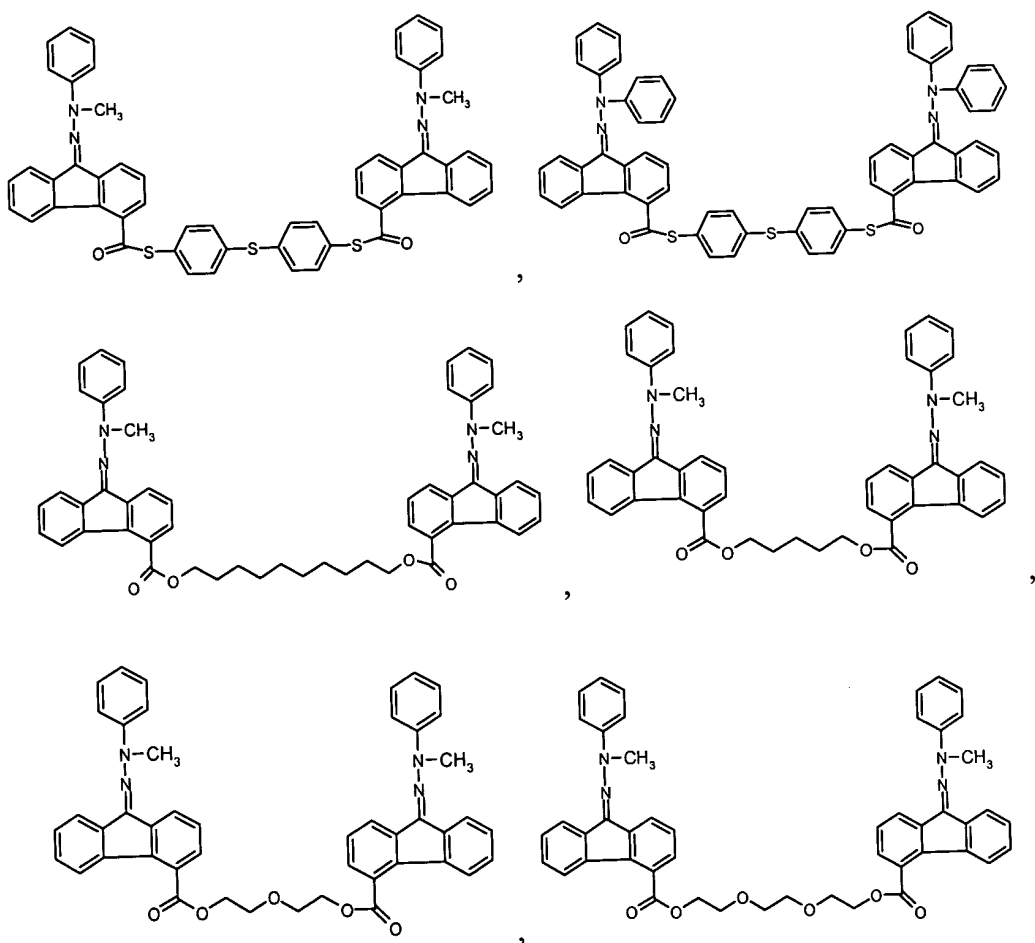
20 Y comprises a bond, C, N, O, S, a branched or linear  $-(CH_2)_p-$  group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or a  $NR_9$  group where  $R_9$  is hydrogen atom, an alkyl group, or aryl group, wherein Y has a structure selected to form n bonds with the corresponding X groups; and

- 25 (ii) a charge generating compound.

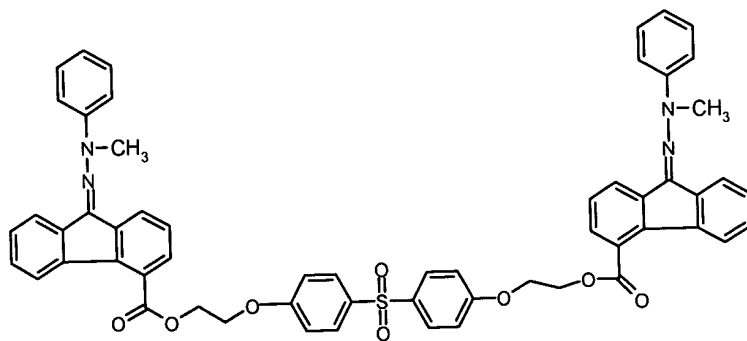
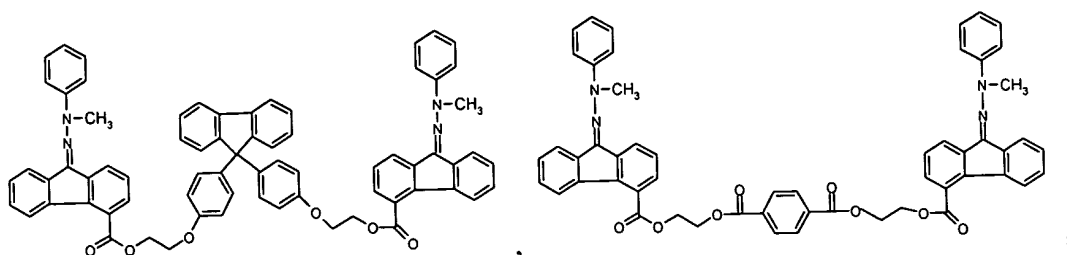
9. An electrophotographic imaging apparatus according to claim 8 wherein Y is an aromatic group and X is -S-C(=O)-.

10. An electrophotographic imaging apparatus according to claim 8 wherein Y is a bond, O, S, or CH<sub>2</sub> and X is -(CH<sub>2</sub>)<sub>m</sub>- group where m is an integer between 0 and 20 and where at least one of the CH<sub>2</sub> groups is replaced by O, S, C=O, O=S=O, an ester group, a heterocyclic group, or an aromatic group.

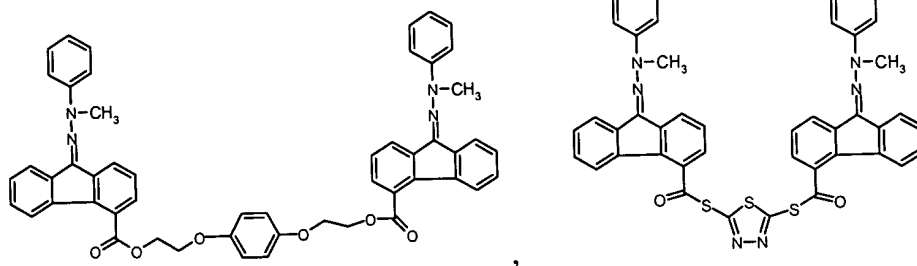
11. An electrophotographic imaging apparatus according to claim 8, wherein the charge transport material has a formula selected from the group consisting of the following:



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12. An electrophotographic imaging apparatus according to claim 8 wherein the photoconductive element further comprises a second charge transport material.

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13. An electrophotographic imaging apparatus according to claim 12 wherein second charge transport material comprises a charge transport compound.

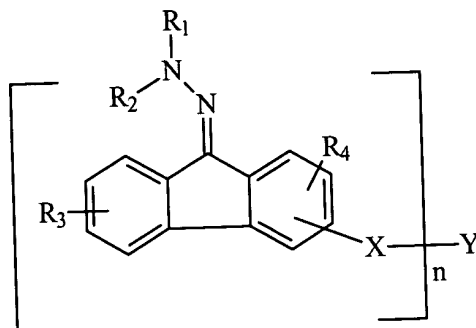
14. An electrophotographic imaging apparatus according to claim 8 further comprising a liquid toner dispenser.

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15. An electrophotographic imaging process comprising;

(a) applying an electrical charge to a surface of an organophotoreceptor comprising an electrically conductive substrate and a photoconductive element on the electrically conductive substrate, the photoconductive element comprising

(i) a charge transport material having the formula



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where n is an integer between 2 and 6, inclusive;

R<sub>1</sub> and R<sub>2</sub> are, independently, an alkyl group, an alkaryl group, or an aryl group with the proviso that neither R<sub>1</sub> nor R<sub>2</sub> is a naphthyl group, a stilbenyl group, alkylsulfonylphenyl group or a (9H-fluoren-9-ylidene)benzyl group;

10 R<sub>3</sub> and R<sub>4</sub> are, independently, H, halogen, carboxyl, hydroxyl, thiol, cyano, nitro, aldehyde group, ketone group, an ether group, an ester group, a carbonyl group, an alkyl group, an alkaryl group, or an aryl group;

X is a linking group having the formula -(CH<sub>2</sub>)<sub>m</sub>-, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups can be optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, a NR<sub>5</sub> group, a CHR<sub>6</sub> group, or a CR<sub>7</sub>R<sub>8</sub> group where R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, and R<sub>8</sub> are, independently, H, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

20 Y comprises a bond, C, N, O, S, a branched or linear -(CH<sub>2</sub>)<sub>p</sub>- group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or a NR<sub>9</sub> group where R<sub>9</sub> is hydrogen atom, an alkyl group, or aryl group, wherein Y has a structure selected to form n bonds with the corresponding X groups; and

(ii) a charge generating compound.

(b) imagewise exposing the surface of the organophotoreceptor to radiation to dissipate charge in selected areas and thereby form a pattern of charged and uncharged areas on the surface;

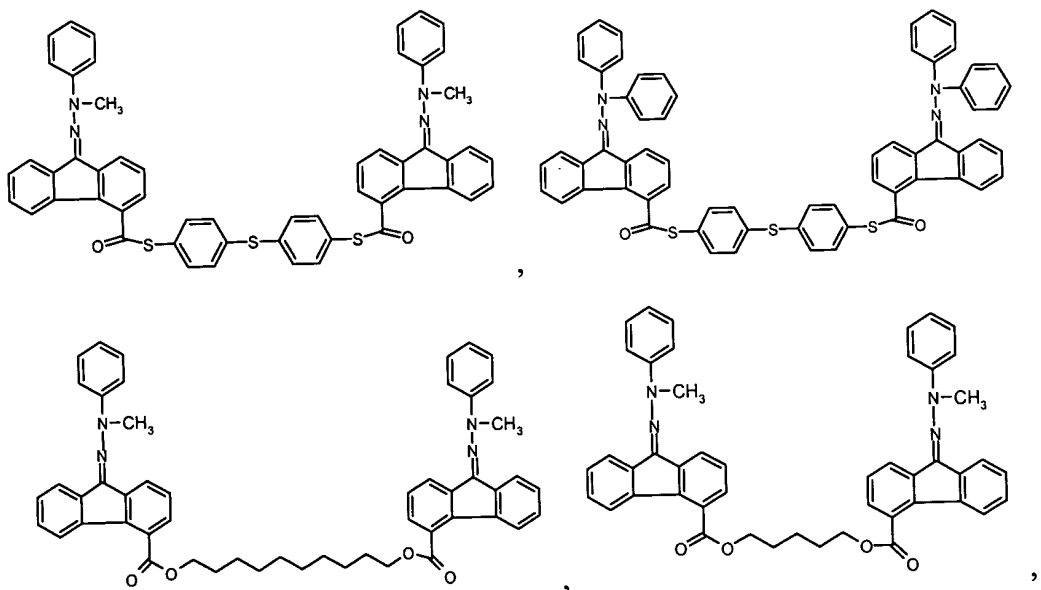
(c) contacting the surface with a toner to create a toned image; and

5 (d) transferring the toned image to substrate.

16. An electrophotographic imaging process according to claim 15 wherein Y is an aromatic group and X is  $-S-C(=O)-$ .

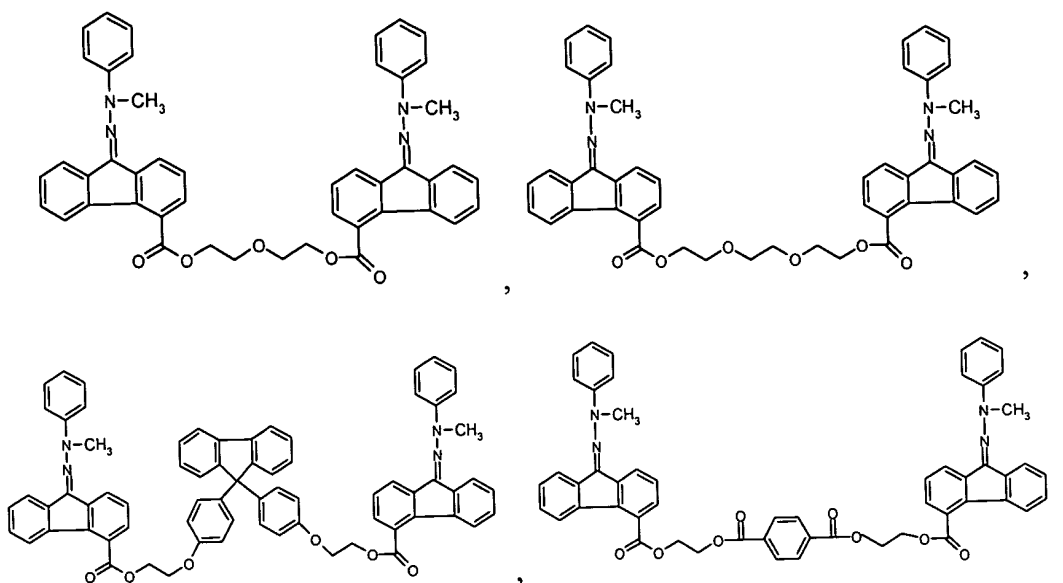
10 17. An electrophotographic imaging process according to claim 15 wherein Y is a bond, O, S, or  $CH_2$  and X is  $-(CH_2)_m-$  group where m is an integer between 0 and 20 and where at least one of the  $CH_2$  groups is replaced by O, S,  $C=O$ ,  $O=S=O$ , an ester group, a heterocyclic group, or an aromatic group.

15 18. An electrophotographic imaging process according to claim 15 wherein the charge transport material has a formula selected from the group consisting of the following:

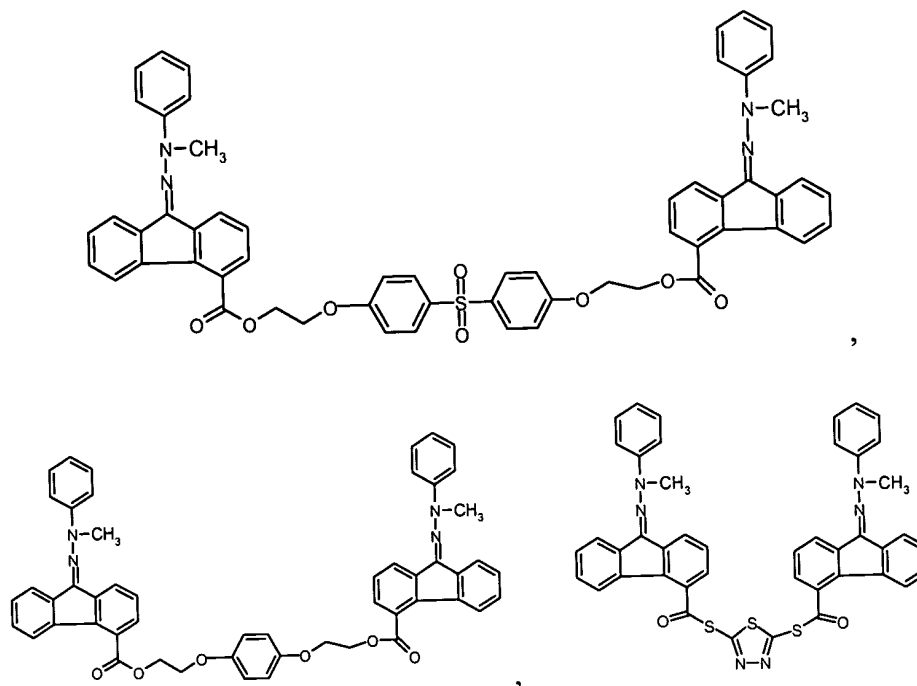


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19. An electrophotographic imaging process according to claim 15 wherein the photoconductive element further comprises a second charge transport material.

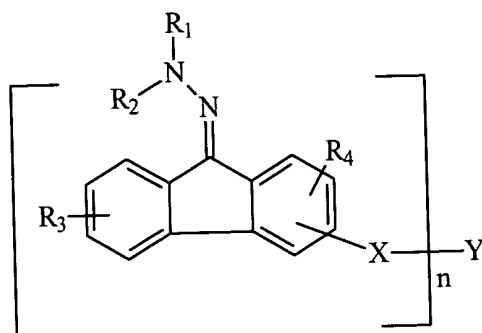
20. An electrophotographic imaging process according to claim 19 wherein the second charge transport material comprises a charge transport compound.

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21. An electrophotographic imaging process according to claim 15 wherein the photoconductive element further comprises a binder.

22. An electrophotographic imaging process according to claim 15 wherein the toner comprises a liquid toner comprising a dispersion of colorant particles in an organic liquid.

23. A charge transport material having the formula



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where n is an integer between 2 and 6, inclusive;

R<sub>1</sub> and R<sub>2</sub> are, independently, an alkyl group, an alkaryl group, or an aryl group with the proviso that neither R<sub>1</sub> nor R<sub>2</sub> is a naphthyl group, a stilbenyl group, alkylsulfonylphenyl group or a (9H-fluoren-9-ylidene)benzyl group;

15

R<sub>3</sub> and R<sub>4</sub> are, independently, H, halogen, carboxyl, hydroxyl, thiol, cyano, nitro, aldehyde group, ketone group, an ether group, an ester group, a carbonyl group, an alkyl group, an alkaryl group, or an aryl group;

20

X is a linking group having the formula -(CH<sub>2</sub>)<sub>m</sub>-, branched or linear, where m is an integer between 0 and 20, inclusive, and one or more of the methylene groups can be optionally replaced by O, S, C=O, O=S=O, a heterocyclic group, an aromatic group, urethane, urea, an ester group, a NR<sub>5</sub> group, a CHR<sub>6</sub> group, or a CR<sub>7</sub>R<sub>8</sub> group where R<sub>5</sub>, R<sub>6</sub>, R<sub>7</sub>, and R<sub>8</sub> are, independently, H, an alkyl group, an alkaryl group, a heterocyclic group, or an aryl group; and

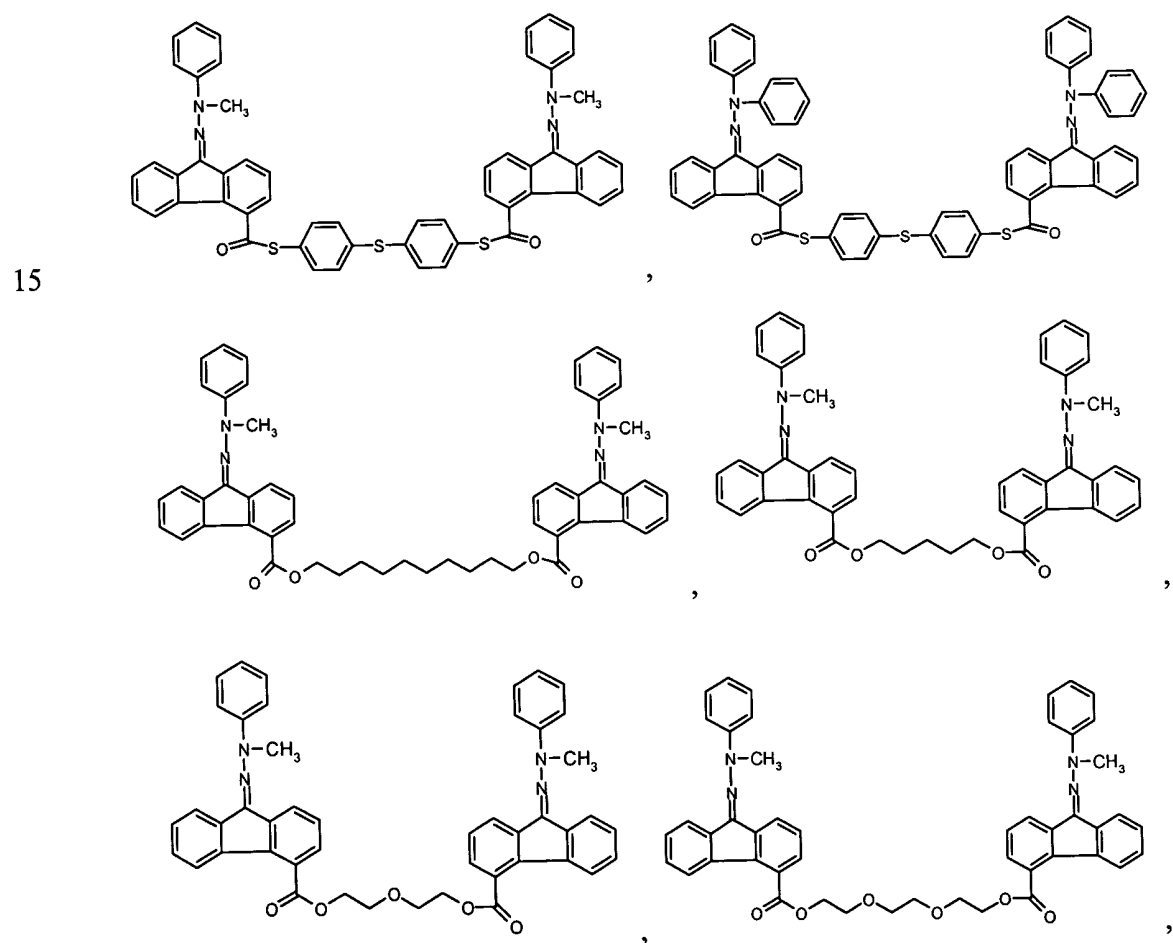
Y comprises a bond, C, N, O, S, a branched or linear -(CH<sub>2</sub>)<sub>p</sub>- group where p is an integer between 0 and 10, an aromatic group, a cycloalkyl group, a heterocyclic group, or

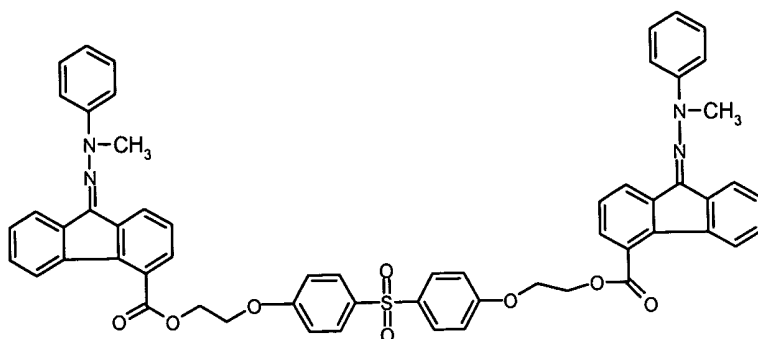
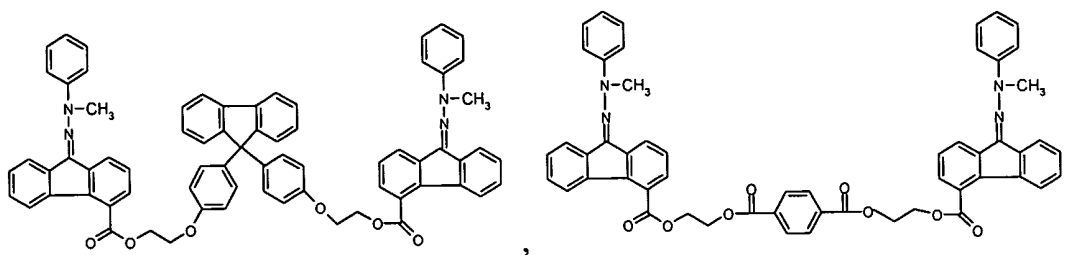
a  $\text{NR}_9$  group where  $\text{R}_9$  is hydrogen atom, an alkyl group, or aryl group, wherein Y has a structure selected to form n bonds with the corresponding X groups.

24. A charge transport material according to claim 23 wherein Y is an aromatic group and X is  $-\text{S}-\text{C}(=\text{O})-$ .

25. A charge transport material according to claim 23 wherein Y is a bond, O, S, or  $\text{CH}_2$  and X is  $-(\text{CH}_2)_m-$  group where m is an integer between 0 and 20 and where at least one of the  $\text{CH}_2$  groups is replaced by O, S,  $\text{C}=\text{O}$ ,  $\text{O}=\text{S}=\text{O}$ , an ester group, a heterocyclic group, or an aromatic group.

26. A charge transport material according to claim 23 wherein the charge transport material has a formula selected from the group consisting of the following:





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